McCarty, H. E. Taylor and O. T. Avery, N. W. Pirie, G. Pontecorvo, M. M. Rhoades, O. W. Richards, F. J. Ryan, A. Shapiro, T. M. Sonneborn, S. Spiegelman, E. L. Tatum, and C. B. van Niel) include most of the investigators who have made major contributions in this field. This is the kind of book so exciting that departmental libraries will have long waiting lists of prospective borrowers; and many of the latter will buy it themselves rather than wait for the departmental copy.

P. F. MILLER.

Altenburg, Edgar. *Genetics.* London, 1947. Constable & Co. Ltd. Pp. xii + 452. Price 16s.

PROFESSOR ALTENBURG is one of the "old guard" who witnessed the birth of modern genetics in the "Drosophila room" of Columbia University in the years preceding the first world war. No wonder then that the genetics of Drosophila is given considerable prominence in this new text-book of genetics. But whereas the chromosomal genetics of Drosophila is admirably treated in great detail and right up to its more sophisticated ramifications, other fields of equal importance are disappointingly low-brow and scarcely go beyond the standard expected of the first-year student. This applies particularly to the treatment of human genetics and of developmental genetics. Though the book opens with the remark that "emphasis has been placed on modern genetics" and that "the author has attempted to make the student feel that genetics is a growing science, that important developments are now taking place," some of the most important developments which are now taking place are not mentioned at all; for instance the fundamental work on the biochemical mutants of Neurospora and other microorganisms is conspicuous by its absence, nor is any reference made to the *Rh* factor in man and the incompatibility relationships between mother and fœtus, to mention only two glaring omissions. To do the author justice, what is given is generally correct, which is more than can be said about some text-books of genetics. But the reviewer cannot help doubting whether the book will inspire the young student, or give him the balanced outlook on the subject in the way a first-class text-book should.

One specific point of detail must be mentioned. The author has in some cases arbitrarily altered the symbols of well-known genes in organisms with which he cannot have more than a nodding acquaintance. To introduce these most unfortunate and confusing new symbols after international committees of specialists have gone to great trouble to eradicate old confusions cannot be justified by the reasons given by the author. If he thinks that genetical symbolism is in need of reform, the place to ventilate his ideas would have been the Nomenclature Committee of the next International Congress of Genetics.

H. G. HILL.

GENETICS AND MEDICINE

Grüneberg, H. *Animal Genetics and Medicine.* London, 1947. Hamish Hamilton Medical Books. Pp. 296. Price 21s.

THIS book is an attempt to establish new bridges between pathology and rodent genetics, which so far have been contiguous only in cancer research. In the first chapter Dr. Grüneberg clears the ground by a brief consideration of such topics as chromosomes and genes, homozygotes and heterozygotes, dominance, causal and formal genesis, and then proceeds to discuss three aspects of the subject, which are more specific for his theme, namely, the spectra (syndromes) of inherited diseases, the time of their onset and, finally, their analysis as dynamic processes. The second chapter describes the advantages, for ætiological studies, of using inherited diseases of animals and also the limitations of this comparative method. An important advantage is the homogeneity of the material, i.e. the investigator can be sure that he is dealing with the "same condition" all the time, which he can keep and reproduce by breeding, whereas the clinician

or pathologist is dependent on chance material. Drastic direct methods of investigation can be applied in animal experiments to a much higher degree than is possible in clinical procedure; thus, animals in the initial stages of disease, e.g. embryos, can be killed and their pathological histology analysed.

On the other hand, better control of environment makes possible a rational study of many geriatric conditions, which in man are obscured by chance effects. The limitations of the usefulness of the methods lie, first, in the obvious fact that, as in all medical research on animals, the approach is indirect and, secondly, in the present impossibility of producing any particular hereditary model disease at will.

A detailed analysis of a lethal gene of the rat in the third chapter serves as a model for Dr. Grüneberg's approach. Tracing numerous clinical and pathological features back to a " primary " gene action responsible for an anomaly of cartilage, he draws a detailed pedigree of causes and with its aid discusses pleiotropism, tissue specificity, functional, developmental and time correlations, and other effects of gene manifestation.

The remainder of the book is a systematic description of our knowledge concerning more than a hundred hereditary diseases in laboratory rodents, arranged in twenty-one chapters according to the system of the body mainly affected.

Dr. Grüneberg's book puts mammalian genetics firmly on the map as a new ancillary science of medicine. For those interested in the wider aspects of human genetics, two points seem to the reviewer of paramount importance. They are, on the one hand, the great multiplicity of manifestations to which one gene gives rise and, on the other hand, the considerable number of mimic genes, resulting in similar conditions. It is very likely that heredity in man is equally complex but, for well-known reasons, it will be a long time before human genetics can approach the state of detailed knowledge of mammal genetics, which is here described for the first time. Meanwhile, this book may serve as a warning against the application of such " eugenic " measures as are based on the now antiquated notion that there is usually a simple relationship between a gene and a character.

H. KALMUS.

DEMOGRAPHY

Edge, P. Granville. *Vital Statistics and Public Health Work in the Tropics, Including Supplement on the Genealogy of Vital Statistics.* 2nd Edn. London, 1947. Baillière, Tindal & Cox. Pp. xii + 268. Price 15s.

MAJOR GRANVILLE EDGE, himself an expert on the vital statistics of tropical territories, has written this book in order to convince medical officers working in the tropics of the importance of vital statistics and to point out some of the pitfalls peculiar to work in the colonies. Readers of the EUGENICS REVIEW will not need to be convinced of the importance of the subject, and there are indeed signs that the authorities themselves are also aware of the necessity for this work. For some time Dr. Kuczynski has been occupying the post of Demographic Adviser to the Colonial Office, and both at the centre and in the field statistical work is being pursued. It is to be hoped that before long professional statisticians in the colonies will be able to relieve medical officers (who have done a good deal of the pioneering work) of the responsibility for vital statistics.

In view of this Major Edge's book may perhaps have been published a little late. Statisticians will realize the necessity of obtaining accurate and reliable figures for the population at risk before calculating birth, death, marriage or sickness rates. They will not, however, always be aware of the peculiarities of the native populations with whom they are dealing and they will find the description of their habits given by Major Edge most valuable. He stresses the necessity for a slow and cautious approach in requesting information; which the natives in many cases will be loath to give for superstitious reasons or because they mistrust the white man.